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ANNUAL REPORT
OF THE
PRESIDENT
OF
TUFTS COLLEGE
1894-95.



BOSTON:
ALFRED MUDGE & SON, PRINTERS.
No. 24 FRANKLIN STREET.
1896.

PRESIDENT'S REPORT.

1894-5.

To the Honorable and Reverend the Trustees of Tufts College:

GENTLEMEN: The President of the College has the honor to submit the following report for the academic year 1894-5, namely, from September 20, 1894, to September 19, 1895.

The Corporation has met with two serious losses during the year. The Rev. Clark Rice Moor died on the 27th of April, and the Rev. Alonzo Ames Miner, D.D., LL.D., entered into rest on the 14th of June. Mr. Moor was an active and valued member of the corporation. His interest in the College antedated by many years his election to the office of trustee. In his official capacity he was constant in his attendance upon the meetings of the Board and was pains-taking and intelligent in regard to all matters that came up for action. Whenever any special duty was assigned him, he performed it with fidelity. His work of a year ago as Chairman of the Board of Visitors to the Divinity School was especially thorough and valuable.

Dr. Miner's connection with Tufts College was so intimate and covered so long a period of time that it is impossible to think of the College without thinking of him, and *vice versa*. The history of the institution can never be written without giving an account of Dr. Miner's varied services to it almost from its inception to the present time. In like manner, the biography of Dr. Miner would be fatally deficient if the important particulars in which the College absorbed his thought, enlisted his energies, and commanded his affections were omitted. As soon

as the project for its establishment was fully broached, he took a most active and vital interest in it. It was his ardent advocacy that secured many large subscriptions from the members of his parish in Boston, and inspired confidence in the stability and progress of the undertaking, even beyond the limits of parish and denomination. He was instrumental also in a marked degree in securing from the Legislature of Massachusetts a large donation from the proceeds of the sale of the Back Bay Lands. On the death of Dr. Ballou, the first president of the College, in May, 1861, Dr. Miner was chosen to the presidency and filled the office with signal ability for twelve and a half years. His rare intellectual gifts became the symbol before the world of the ground and purpose of this new experiment in education. He did much to set the standard high and keep it so. As a teacher he made a strong and lasting impression on his pupils through his wonderful personality. When the time came, as he thought, for his resignation, the Trustees were reluctant to relinquish his services, and they did what they could to dissuade him from the step he felt called upon to take. But though his relation to the College changed at that time, his interest continued unabated to the hour of his death. He not only remained a member of the corporation, but was Chairman of the Executive Committee, serving also upon many important sub-committees. As the Trustee of funds to be devoted to educational purposes he kept the College constantly in mind and secured important facilities for it. Finally in his will he gave the crowning witness of his devotion, not only by confirming his bond for forty thousand dollars given to secure the erection of the Miner Theological Hall, but by making the College his residuary legatee.

The suggestion in my last annual report looking towards formal alumni representation upon the Board of Trustees has not yet received definite action. But a committee has been

appointed to consider the subject, and doubtless something will be done during the coming year to modify the constituent elements of this body.

The following permanent appointments have been made : —

HERBERT L. SMITH, M. D.,
Professor of Clinical Surgery.

THOMAS M. DURELL, M. D.,
Professor of Legal Medicine.

FREDERICK L. JACK, M. D.,
Professor of Otology.

WALTER CHANNING, M. D.,
Professor of Mental Diseases.

LEO R. LEWIS, A. M.,
Professor of the History and Theory of Music.

FRANK W. DURKEE, A. M.,
Assistant Professor of Chemistry.

The following re-appointments for one year have been made : —

FRANK E. SANBORN, S. B., *Instructor in Mechanical Engineering.*

EDWIN A. START, A. M., *Instructor in History.*

FRANK T. DANIELS, A. M. B., *Instructor in Civil Engineering.*

HORATIO MYRICK, A. M. B., *Walker Special Instructor and Instructor in Electrical Engineering.*

THOMAS WHITTEMORE, A. B., *Instructor in English.*

JOHN E. BUCHER, A. C., Ph. D., *Instructor in Organic Chemistry.*

FRANK B. BROWN, M. D., *Instructor in Bacteriology and Assistant in Pathology.*

WILLIAM P. DERBY, M. D., *Instructor in Gynaecology and Assistant in Obstetrics.*

CHARLES G. CUMSTON, M. D., *Instructor in Gynaecology and Assistant in Obstetrics.*

CHARLES ST. CLAIR WADE, A. M., *Instructor in French and Teacher in the Bromfield-Pearson School.*

FRANK G. WREN, A. B., *Instructor in Mathematics and Teacher in the Bromfield-Pearson School.*

W. R. WOODBURY, A. B., M. D., *Lecturer on Hygiene and Medical Director of the Gymnasium.*

- ALBERT E. ROGERS, M. D., *Instructor in Materia Medica.*
CHARLES D. KNOWLTON, M. D., *Demonstrator of Anatomy.*
RICHARD M. PEARCE, JR., M. D., *Demonstrator of Physiology.*
THOMAS F. GREENE, M. D., *Demonstrator of Anatomy.*
J. D. C. CLARK, M. D., *Assistant in the Theory and Practice of Medicine.*
GEO. A. WEBSTER, M. D., *Lecturer on Otology.*
WILLIAM A. WHITE, M. D., *Lecturer on Diseases of Children.*
EDWARD E. THORPE, M. D., *Assistant in Medical Chemistry.*
FRED. H. MORSE, M. D., *Lecturer on Electro-Therapeutics.*
CHARLES L. CUTLER, M. D., *Assistant in Gynaecology.*
FRED. S. RADDIN, M. D., *Lecturer on Genito-Urinary Surgery.*
GEO. H. FURBISH, *Teacher in Bromfield-Pearson School.*

The following new appointments have been made for one year: —

- HOWARD H. HIGBEE, A. B., Ph. D., *Instructor in Qualitative Analysis.*
E. CHANNING STOWELL, M. D., *Instructor in the Diseases of Children.*
CHARLES C. STROUD, A. B., *Instructor in Physical Training.*
HARRY GRAY CHASE, B. E. E., *Instructor in Electrical Engineering.*
THOMAS A. MIGHILL, A. B., Ph. D., *Instructor in Organic Chemistry.*
VIRGIL L. LEIGHTON, A. M., *Assistant in Qualitative Analysis.*
JOHN W. EDWARDS, S. B., *Assistant in General Chemistry.*
ORLANDO F. LEWIS, A. B., *Tutor in Modern Languages.*
HERBERT E. CUSHMAN, A. M., *Assistant in Philosophy.*
HOWARD S. DEARING, M. D., *Assistant in Clinical Medicine.*
SAMUEL C. EARLE, A. M., *Assistant in English Literature.*
MARY E. WELLINGTON, *Prosector of Anatomy.*
CHARLES A. HEBBARD, M. D., *Demonstrator of Legal Medicine.*
GEORGE A. BATES, D. D. S., *Lecturer on Histology.*
WALTER J. OTIS, M. D., *Lecturer on Rectal Diseases.*
WILLIAM S. BOARDMAN, M. D., *Lecturer on Laryngology.*
HAIRABED S. DJELALIAN, *Assistant in General Chemistry.*
FRED HILLIARD ROBINSON, *Assistant in Medical Chemistry.*
HENRY P. JOHNSON, *Assistant in Bacteriology.*

Last year I announced the appointment of Professor H. A. Dearborn as Registrar. The very rapid increase of the duties of that officer have rendered the division of his work necessary. This has been done by the creation of the office of Bursar, to which position the Rev. W. A. Start, A. M. has been appointed.

The whole number of students admitted to the College in all departments is one hundred and sixty-four. They are distributed as follows:—

Graduates	3
Freshmen (Classical)	41
Freshmen (Engineers)	43
Specials	10
	— 97
Divinity School	14
Medical School	46
Bromfield-Pearson School	7
	— 67
	164

The whole number enrolled in the College including the Bromfield-Pearson School, is three hundred and ninety-four. They are distributed as follows:—

Graduate Department	6
Courses in Liberal Arts:	
Seniors	20
Juniors	29
Sophomores	27
Freshmen	41
	— 123
Engineering courses:	
Seniors	2
Juniors	12
Sophomores	34
Freshmen	43
	— 91
Special Students	26
Total in College of Letters	240
Total in Divinity School	43
Total in Medical School	104
Total in Bromfield-Pearson School	7
	394

The whole number of women students enrolled in all departments is seventy-two; twenty-one more than last year. They are distributed as follows:—

College of Letters	39
Divinity School	8
Medical School	24
Graduate Courses	1
Total	72

The whole number of degrees given in course at the late Commencement was sixty-four, as follows:—

Bachelor of Arts	18
Bachelor of Philosophy	5
Bachelor of Civil Engineering	3
Bachelor of Divinity	9
Doctor of Medicine	19
Master of Arts	7
Electrical Engineer	1
Civil Engineer	1
Doctor of Philosophy	1
Total	64

No new buildings have been undertaken during the year. Those that were in process of construction at the beginning of the year have all been completed. Owing to the delay in getting it ready for occupancy Metcalf Hall was only about half filled with students, but the prospect is that for the ensuing year it will be entirely filled. The department of Biology has experienced great relief in the fitting up of new laboratories in the extension to the Barnum Museum of Natural History. The new chemical building, although exceedingly simple and inexpensive, has proved to be well adapted to its uses and has greatly increased the scope of the department. Indeed, few colleges in the country are better equipped for chemical work than we are.

The following is a detailed account of the several departments of instruction:—

Latin. — The Freshman class read one book of Livy, Cicero's *Cato Major*, and three books of the Odes of Horace. They

also had one exercise a week in Latin composition and one in Roman history and antiquities. Frequent essays on topics suggested by the work of the class-room were prepared and read by members of the class. Several members of the class took one hour a week for extra work, reading Cicero's *Laelius*. The Sophomores read several of the *Satires* and the *Ars Poetica* of Horace, the first book of Cicero's *Tusculan Disputations*, and the *Adelphi* of Terence. Nearly all, besides the regular course, took one hour a week of extra work. Thirteen Juniors and two Seniors read the principal *Satires* of Juvenal, a large number of Pliny's letters, the *Adelphi* of Terence, Cicero's *Laelius*, and the *Ars Poetica* of Horace. A class of eight men, composed of Seniors, Juniors, and Sophomores, pursued the study of archæology and the history of ancient art, meeting twice a week for nearly the whole of the year.

In view of the increasing demands made upon the Professor in consequence of the large number of students now in the College, the almost unlimited extension of the elective system, the necessity of employing new and more varied methods of instruction, and the broadening of the field of classical study and research so as to embrace comparative philology, history, archæology, and other related subjects, it is suggested that, as has already been done in every other department of the College, some young man thoroughly equipped for such a position by an extended course of study and first-class training be appointed to assist the Professor in the work of his department.

Greek. — Four Juniors elected Greek with Professor Schneider throughout the year, reciting three times a week. The textbooks were: Æschylus's *Prometheus*, Theocritus's *Idylls*, Plato's *Symposium*; and for sight reading: Lucian's *Dialogues* and Tyler's *Greek Lyrics*. After reading the *Symposium*, several lectures were given to the class with reference to the subject matter of the Dialogue, as also with reference to the character of

the several speakers and the relation of the several speeches to each other, showing the gradual progress made in them. Two Seniors elected Greek, reciting three times a week during the year. Text-books: Pindar's Odes, Aristotle's Ethics, Plato's Republic. For sight-reading: Xenophon's Hellenica, with especial reference to the history of the times; Tyler's Greek Lyrics.

The Ethics of Aristotle furnished a number of subjects for discussion, and during many an hour so-called translation made little headway, the time being consumed in discussing ethical questions, as they presented themselves in the course of the reading. The same may be said with regard to the contents of Plato's Republic.

During the past year, the Professor of Classical Philology, Dr. Graves, gave instruction aggregating fifteen hours a week for the first term and seventeen hours for the second term. Each term six hours were devoted to elementary Greek, three both to Greek II. and Greek III., and three to sight reading. During the second term, a special course in old Latin, occupying two hours a week, was also given. The work of the year in all classes was very successful, as the classes were unusually good. Great interest in the work was shown throughout. The Freshmen pursued the regular course in the Historians, Homer and Sophocles, and the Sophomores made a study of the orators and dramatists. The sight classes in Greek read from the *Odyssey* of Homer, while that in Latin gave its time to Pliny's Epistles and the *Divus Julius* of Suetonius.

The course in old Latin was an interesting feature of the department's work. The class was composed mostly of Juniors and Seniors who had specialized in Latin. Allen's *Fragmenta* of Early Latin was used as the text and the recitations were supplemented by lectures and theses.

Mathematics.—On reviewing the work of the Mathematical Department for the year, three points of especial importance should be mentioned. First, concerning the number of hours of instruction, as the Catalogue does not suggest these facts, during the year. Mr. Sanborn taught one division of the Sophomore Engineers in Calculus three hours a week during second term. Mr. Myrick taught the Freshman Engineers in Solid Geometry, in two divisions, two hours each a week for six weeks, and in Plane Trigonometry three hours a week, in two divisions, for second term; also he taught the same class four hours a week in Algebra, for a half-year, in two divisions. Mr. Wren taught during first term two divisions of Sophomore Engineers in Analytic Geometry three hours each a week. In the Bromfield-Pearson School, he taught a class in Algebra three hours a week; a class in Geometry three hours a week, and a class in Analytic Geometry four hours a week. Besides, he took charge of a section in Surveying to assist Professor Bray during part of this term. During the second term, he had two divisions of the Sophomore Engineers in Calculus three hours each a week, and a division in Plane and Spherical Trigonometry three hours a week. In the Bromfield-Pearson School, he also taught a class in Algebra and Trigonometry three hours a week; in Geometry three hours a week, and in Calculus four hours a week.

Professor Brown had the Freshman Class in two divisions through the year, in Algebra, Solid and Spherical Geometry, and Plane Trigonometry, three hours a week; an Elective Class in Analytical Geometry three hours a week during first half year; the Senior Engineers in Calculus during first term, and in the Method of Least Squares during the second half year, twice a week; an Elective Class in Differential Equations, second term, three times a week; an Elective Class of five Freshmen in Advanced Algebra, second term, three times a week; an

Elective Class in Spherical Trigonometry and Three-Plane Analytic Geometry, second term, three times a week; the Junior Engineers in Calculus three times a week through the year.

This gives in term-hours: —

Mr. Sanborn	3
	— 3
Mr. Myrick	12
" "	6
	— 18
Mr. Wren	6
" "	6
" "	3
	— 15
Professor Brown	12
" "	3
" "	4
" "	3
" "	3
" "	3
" "	6
	— 34
Mr. Wren in Bromfield-Pearson School	20
	— 20

Secondly, the Professor calls especial attention to the very valuable service the College is getting from Mr. Wren. He assumed his duties at so youthful an age, that there were some misgivings as to his success with students, many of whom are his equals in age. He brought to his work not only acquirements in Mathematics that had been equalled by none of his predecessors in the office of instructor, but a mind gifted in mathematical talent. Besides, he is endowed with the requisites of a teacher in an eminent degree, having unfailing patience and a desire to give to any student of his time as long as the student has a desire to learn. In all this he gives the highest promise to become a very strong teacher of Mathematics.

Thirdly, the Professor thinks that the required six hours in Mathematics should not be limited to Algebra, Solid and Spher-

ical Geometry, and Trigonometry. If any students have no desire to study Solid and Spherical Geometry, they should be allowed to take in its place any mathematical study that they may be qualified to pursue; say, Surveying, Elementary Mechanics, or Descriptive Geometry.

Civil Engineering. — Owing to the change from a three to a four years course in Engineering there was no regular Senior class to graduate this year. There were, however, three men taking senior Civil Engineering work who received their degrees at the Commencement in June. During the first term, from September to February, the work of the Professor was in Applied Mechanics (out of course), Highway Construction, Railroad Curves, and Land Surveying. The latter study is now required of all second-year Engineers, and embraces text-book work with notes and problems, field work in measuring and laying out land, together with practice with level, and establishing grades. Some practice also is required in plotting and lettering, and in profile drawing; all from notes of actual work in the field. At the beginning of the second term in February the regular work in Applied Mechanics began with all Junior Engineers. This consisted of three exercises a week of text-book work with problems and notes, and one exercise of three hours of laboratory work. Also classes were taught in Masonry Construction, Hydraulics, and in Railroad Location.

Under Mr. Daniels, the Freshman Class in Engineering did the usual work in Mechanical Drawing, three periods a week during the year being devoted to it. The amount of work accomplished was somewhat greater than that of former years. This class also did free-hand lettering during the first term, two half periods a week. Eleven small sheets were finished, including all the styles in common use. All Sophomores in the Engineering Department were required to take an elementary

course in Surveying in the first term. This included field work with compass, transit, and level, theory from Carchart's Plane Surveying, and work in plotting and making profiles. Carefulness in making and working out notes was insisted upon throughout the course. The Juniors of the Civil Course worked with transit, level, and plane table four hours a week for the year. During inclement weather this was replaced by drawing. A problem in street construction was carried through in field and drawing-room. Structures in wood and stone were also studied. Senior work in Civil Engineering included field practice with transit, dumpy, and hand levels; drawing-room work in topography and structures; roofs and bridges. Lack of time forbids any but a short course in the last-named subject. Some of the leading principles were developed by the aid of apparatus in conjunction with the printed text. The cases considered were few, but were worked out with care and at some length.

The Department has acquired a Thacher's Calculating Instrument, the gift of Mr. Fred S. Pearson.

By Mr. Sanborn work was done as follows:—

First Term.

Junior class.

12 Engineers } in Steam, 3 hours a week.
2 Electives }

Sophomore class.

- (a) { 20 Engineers } in Elementary Mechanism, 1 hour a week.
3 B. P. students
(b) 19 Engineers in Elementary Mechanism, 1 hour a week.
(a) 19 Engineers in Drawing, 4 hours a week.
(b) 19 Engineers in Drawing, 4 hours a week.

Second Term.

Sophomore class.

- (a) 15 Engineers in Drawing, 4 hours a week.
(b) 10 Engineers in Calculus, 3 hours a week.

Freshman class.

- 35 Engineers in Mechanics, 2 hours a week.

In steam the work led up to the intelligent use of calorimeters, gauges, indicators, etc., and the testing of engines and boilers. A number of tests were made with the engines at our command. The work can be done to much better advantage when actual tests can be made in every case. This is at present impossible. In mechanism the work comprised a study of the movements of the simple mechanisms, so that the student could more quickly make an analysis of different existing machines, and could more readily apply mechanical principles.

Electrical Engineering.—During the first term, Professor Hooper gave instruction in electro-dynamic machinery, to an elective class of four. In the second term the Juniors read Thompson's Dynamo, reciting three times a week. During the first term Mr. Myrick instructed the Juniors in the theory and practice of simple electrical measurements by means of lectures twice a week, and work in the electrical laboratory two exercises a week. This work was continued in the second half year by the Professor. One graduate student, a candidate for the degree of Electrical Engineer, continued his studies in the mathematical theory of alternating currents. He also assisted the Professor in a study of electric railway motors, the experimental part of this work being carried out at the Central Power Station of the West End Street Railway Company. During the latter part of the year this student made an elaborate investigation on the electrical resistance of the human body and discovered facts believed to be new and important. During the whole year the machine shop has been in operation at least one evening a week and some twenty students have voluntarily given more or less time under the direction of the Professor to the manufacture and repair of electrical apparatus and machinery. Early in the latter half of the year, H. G. Chase, B. E. E., was appointed assistant in Electrical Engineer-

ing and rendered valuable services in the laboratory and in the dynamo room. The course thus entered upon should be continued. It is usually possible to secure the services of one or more recent graduates at a merely nominal cost to the College. These men, besides relieving the professor in charge of much of the drudgery of laboratory work, and doing many things that he cannot now find time to do, would be fitting themselves for better positions as teachers and engineers and would secure the prestige of official connection with the College in obtaining such positions.

To an extent probably not equalled by any other branch of instruction, Electrical Engineering demands a large and varied equipment suitably located for carrying on its work. Our equipment is incomplete, and until the erection of the promised Engineering Building even such as we have cannot be fully utilized. The problem of keeping fifty or sixty men suitably employed in the laboratory during the present year is one the solution of which has not yet been found.

In addition to work, as Walker Special Instructor, reported above, Mr. Myrick gave through the first term, instruction in electrical theory two hours a week to the Junior Engineers by means of recitations and lectures accompanying Vol. II. of Stewart and Gee's Elementary Practical Physics. From November the Junior Engineers were given electrical measurements four hours a week in the laboratory, using Vol. II., Stewart and Gee, as the basis of instruction, the work being recorded and results tabulated by the students. During the second term, instruction in physical manipulations and measurements was given to two sections of Sophomore Engineers, six hours a week to each section. In this work special emphasis was given to a correct understanding of principles by means of lectures, these being followed by measurements and other work depending upon these principles, the whole being exposed by

the student and methodically recorded step by step in his notes, followed by final tabulation of results.

Drawing and Shopwork.—The studies pursued and the number of students in attendance are as follows:—

	<i>First Term.</i>	<i>Second Term.</i>
Freehand Drawing.	27 Freshmen. 1 Sophomore. 1 Junior. 5 Bromfield-Pearson.	
Elementary Mechanical Drawing.	25 Freshmen.	24 Freshmen.
Elementary Machine Drawing and Kinematics.	38 Sophomores.	28 Sophomores.
Elements of Mechanism.	38 Sophomores. 3 Bromfield-Pearson.	
Advanced Machine Drawing and Elementary Design.	11 Juniors.	10 Juniors.
Special Drawing.	3 Freshmen. 2 Sophomores. 1 Senior.	12 Freshmen. 2 Sophomores. 1 Senior.
Civil Engineering Drawing.	2 Juniors. 1 Bromfield-Pearson.	2 Juniors. 2 Seniors. 1 Bromfield-Pearson.
Descriptive Geometry.		26 Freshmen. 6 Sophomores. 2 Bromfield-Pearson.
Carpentry and Turning.	28 Freshmen. 1 Bromfield-Pearson.	
Pattern Making and Moulding.	33 Sophomores. 1 Bromfield-Pearson.	27 Freshmen. 1 Bromfield-Pearson.
Forging.		25 Sophomores. 1 Bromfield-Pearson.
Machine.		1 Sophomore. 10 Juniors.

Two of the allotted four hours a week were devoted to a course in Freehand Lettering and Figuring under the instruction of Mr. Daniels. The remainder of the time was spent in Model Drawing and Machine Sketching, instruction by Professor Anthony. Considering the limited time, the work was fairly good. This elementary work should be included in the requirements for entrance to the Engineering department, but until such time it must be made a very important phase of Freshman work, especially that relating to machine sketching. The course in Elementary Mechanical Drawing was conducted by Mr. Daniels. During the first term the instruction was given by Mr. Sanborn in Elementary Machine Drawing.

The second term was devoted to the study of Gearing under the instruction of Professor Anthony and Mr. Sanborn. The course comprised a series of lectures, and written exercises on the subject, beside the execution of the regular problems in theory and practice. Four hours a week were given to the course. The elements of Mechanism were taught by Mr. Sanborn during the first term. Machine Drawing and Design were pursued by the Juniors four hours a week during the first term, and two hours a week during the second term. This latter period should have been devoted to the machine shop, but the lack of necessary equipment made it necessary to substitute the drawing. The study for the year was equally divided between advanced Machine Drawing and the solution of elementary problems in Design. The course in moulding having been established since the entrance of this class to College, it was found necessary to devote a short time to a special course in this subject in order that the students might be better fitted for their studies in Design. Civil Engineering Drawing was taught by Mr. Daniels.

The course in Descriptive Geometry was attended with

unusual success, both in the interest manifested and the thoroughness of work. The new methods inaugurated last year, and more completely developed during the term just closed, have proved to be conducive to a more thorough understanding of the somewhat difficult subject, and to effect a considerable saving of time to the student. To complete this work it will be necessary to publish our course in suitable form for student use, as has been done with the Freshman course in drawing.

During the first term five and one half hours a week were given to Carpentry and Turning, the character of the work differing but slightly from that of the preceding year. Pattern Making and Moulding were pursued during the second term, the special equipment for the latter being first used by this class. The course in Pattern Making comprises the construction of patterns from drawings, some of which are made by the students of this class: the moulding of these patterns, and the making of the necessary cores, and finally the casting of the piece. By means of the moulding shop it is possible to make the student acquainted with many of the more intricate patterns, which time will not permit the construction of during the course. For the purpose of testing the student's understanding of this subject, and enabling him to obtain a more comprehensive knowledge of the work, it is proposed to introduce written exercises and freehand sketching as a part of the course. The Sophomores completed the course in Pattern Making during the first term, three hours a week being devoted to the subject. Hereafter the course will be completed during the Freshman year.

The schedule of topics for the second term of the Sophomore year specified six hours a week at the forge, but the difficulty encountered in arranging the program necessitated

reducing this time one half. This change proved to be advantageous, as in the revision of the course it was found to be possible to permanently shorten the course without material loss to its educational value. Very commendable work has been done by the class, especially in the forging and tempering of tools which will be required in the machine course for the coming year.

The course in Machine Work was shortened one half by reason of the lack of necessary equipment. Under the instruction of Mr. Myrick the class performed very creditable work in chipping and filing, scraping and fitting; pursuing a course in bench work for three hours a week during the second term.

Physics. — The schedule hours were followed during the year. The class in Physics was the largest we have ever had: seventy-five members. The whole subject was treated exclusively by lecture and experimental demonstration and illustration so far as means at hand would allow. So far as examination papers could show, it appears that as much was accomplished as when daily recitation was required. The attendance was regular, and there appeared to be no desire to run away from the exercise. The size of the class made it needful to crowd the room, and those in the back part of it often could not see the experimental work advantageously, not so much for distance as lack of proper elevation. For examinations the class had to be divided and half of it held in another room by another person, as there is now no possibility of finding another hour than that set in the program.

A course of lectures (Course 7) was given the first term. It began with four students, but ended with a dozen, some coming from the Divinity School. A class in Astronomy also, four students, was maintained through the first term. During the

second term a class of fourteen studied Spencer's First Principles. A course of lectures on electrical principles and apparatus was given to the Senior Electricals. Four students elected laboratory work, and three pursued it through the year. It seems proper to mention here that as the result of this Mr. R. B. Smith made the discovery that the oxygen of the air piles up about the poles of a magnet and may be present in quantity as great as one per cent more than in ordinary air, a fact not only interesting but likely to have some therapeutic value. The crowded state of the lecture room and the congestion in the laboratory is a constant source of worry. The apparatus needs replenishing and suitable cases should be provided for its safe keeping.

Chemistry.—There was practically no teaching done by the Professor last year, as none of the students interested in Chemistry were sufficiently advanced to take higher courses in the subject. Dr. Bucher gave a course of lectures on Organic Chemistry which was attended by seven students, and Dr. Clark had the supervision of four students who elected work in Quantitative Analysis. The research work published during the year comprised two papers by the Professor which appeared in the Journal of the German Chemical Society under the titles :—

I. On the addition of sulphur to unsaturated organic compounds.

II. On the determination of melting points of difficultly fusible and so-called infusible organic substances. And a long monograph entitled Researches on Alloisomerism, which appeared in another German journal, and which has attracted some attention from chemists, as in it was proven experimentally that many of the assumptions on which the recent development of the theory of chemistry in space is based are untenable. The number of subjects in Chemistry was increased from five to

ten, and every opportunity and facility are now given for advanced work.

Instructor Durkee taught General Chemistry to fifty-three engineering students during the first term. Of these, ten were Juniors and forty-three Sophomores. All met the instructor for lectures with recitations twice each week. For laboratory work, the Engineers were divided into two groups. Each group had laboratory work two hours twice each week, principally because the time was unusually short; the work of the Engineers was not so satisfactory as that done by Engineers in previous years. During the year, Mr. Webster and Miss Brown assisted materially with the instruction, in the preparation and care of re-agents, and in the distribution of apparatus. Thirty-nine Engineers were taught Qualitative Analysis during the second term. With the exception of six lectures, the instruction was given in the laboratory. The men were arranged in two groups and each group had nine hours a week of laboratory work. For the students electing, special courses in General Chemistry and Qualitative Analysis were given. That in General Chemistry was taken by nineteen students, and occupied six term hours. Half the time has been devoted to lectures with recitations and half to laboratory work. The class has covered the usual ground in a very satisfactory manner. The course in Qualitative Analysis for the elective students has been given to nine men. The instruction has been given by lectures, and in the laboratory six hours each week for the year.

Biology.—The work in Elementary Biology, which runs through the year, was satisfactorily completed by sixteen students. Comparative Anatomy, also a year's course, was completed by six. In the spring term a course of lectures and laboratory work was given in normal Histology to a class of three who intend later to study medicine. In the Medical School,

two courses of lectures were given by the Professor, each of one lecture a week, running through the year. One was normal Histology, a required subject for first-year men. This was supplemented in the spring term by laboratory work in the Barnum Museum. This laboratory work, which was optional, was taken by twenty out of the forty-two students in the first class. The other course, Embryology, was elective and was attended on the average by about ten students. A pleasing feature was the presence of from two to four practitioners at almost every lecture. The character of the work done by the college student was better than ever before. In the Medical School it was very uneven.

In the Graduate School three students have been under the Professor's direction : two for the year, the third for a few weeks, in completion of work begun last year. One of the Fellows, Frederick Courtland Kenyon, completed three years of graduate work and was granted the degree of Doctor of Philosophy at commencement. His thesis, upon The Morphology of the Pauropida, was a fine piece of work and will be issued shortly as number four of the Tufts College Studies. Mrs. Durkee, upon completion of her work in Chemistry and Biology, was given the degree of Master of Arts at Commencement.

The two fellowships in Biology have been awarded for the coming year to Fred D. Lambert, Ph. B., and Guy C. Winslow, A. B., both men of promise and both candidates for the degree of Doctor of Philosophy.

The wisdom of establishing the Tufts College Studies is shown in the increase of the library by exchanges received. Already over a hundred societies are sending us their transactions regularly. Many of these are kept in the College Library, only those relating to Natural History being transferred to the Barnum Museum. This departmental library

presents the following statistics for the year. The additions for the year have been thirty-four volumes and three hundred and forty-two serials and pamphlets. During the year, one hundred and eleven parts have been bound and the library now contains seven hundred and seventy-nine volumes and thirteen hundred and sixty-nine numbers of serials and pamphlets. The additions were derived from the following sources: Exchange, two hundred and twenty-two; purchase, eighty-four; the remainder being gifts from the following persons: J. S. Kingsley, forty-three; Frothingham Heirs, nine; Essex Institute, eight; A. Giard, six; Geo. A. Bates, two; J. P. Marshall and J. A. Moffat each one.

But little has been added to the equipment during the year. The policy has been to purchase what was necessary and not to buy with the possibility of usefulness in the remote future. The laboratory fees have sufficed to maintain the general equipment and to purchase materials, chemicals, glassware, etc., for class use. Outside of these, the chief additions have been a Minot microtome, a homogeneous immersion objective and the series of skeletons and alcoholic preparations received in exchange, of which mention is made in the report of the Barnum Museum.

The most important matter of the year is the completion of the west wing of the Barnum Museum, which experience shows is admirably adapted in most respects for its purposes. The three large laboratories are used respectively for the elementary class, for advanced students, and for graduates. Besides, the wing furnishes a library room, a study, and much needed storage rooms, and, on the upper floor, an additional exhibition room, the cases for which are now in process of construction.

Geology and Mineralogy.— During the first half year eleven

students elected in the Department of Mineralogy. Instruction was given in Blowpipe Analysis of minerals. Each student was provided with the necessary reagents and became by practice acquainted with the most important minerals of which there are a large number and variety of specimens on the shelves of the cases in the mineralogical work room. In the latter stage of the course, the quantitative analysis of gold and silver ores is made a specialty. A delicate assay balance, and other apparatus necessary for this purpose are provided.

In the second term, the study of Geology is pursued with the use of text-book and lectures. A large collection of rock specimen and fossils is contained in the cases of the lecture room and will be accessible to the students for study.

During the past year sixteen students elected in the department of Mineralogy and Geology.

Modern Languages. — The demands upon the department of Modern Languages, and in particular upon the German section, reached their maximum in the year just ended. Six courses in German were given, while the work in the most advanced of these, being taken for the first time and making greater demands upon the time of the Professor than several of the other courses combined, his duties in connection with this subject alone were unusually arduous. Beside the German Courses, however, the head of the department gave two others, — one in French and one in Italian, both for the entire year, making a program of twenty-four class-room hours a week.

In general the classes have accomplished the usual amount of work, though in some cases, notably that of beginners in German, the large size of the class has perhaps been to the disadvantage of the less able members.

Appended is a schedule of the courses given by Professor Fay, with the numbers enrolled and the text-books employed.

COURSES GIVEN IN 1894-1895 BY THE WADE PROFESSOR
OF MODERN LANGUAGES.

- GERMAN I.** [50 in first term; 31 in second term.] Joynes-Meissner Grammar, Part I; Lewis's Exercises, Group II.; Bernhardt's, *Es war Einmal*; Riehl's, *Burg Neideck*; a few ballads.
- GERMAN II.** [27 in first term; 24 in second term.] Heyse, *Das Mädchen von Treppi*; Freytag, *Der Rittmeister von Alt Rosen*, *Aus dem Staat Friedrichs des Grossen*; several lyric poems; the geography of the German Empire in its principal features.
- GERMAN III.** [24.] Lessing, *Minna von Barnhelm*; Goethe, *Hermann und Dorothea*; Schiller, *Die Jungfrau von Orleans*, *Der Geisterseher*.
- GERMAN IV.** [7.] Schiller, *Der Geisterseher*, *Die Jungfrau von Orleans*, *Aus dem Dreissigjährigen Krieg* (Bernhardt's *Gustav Adolf in Deutschland*), *Wallenstein*; Goethe, *Egmont*.
- GERMAN V.** [9.] Lessing, *Nathan der Weise*, *Prosa*; Goethe, *Tasso*, *Iphigenie auf Tauris*; Buchheim's Prose Composition once a week.
- GERMAN IV.** [2.] A special study of the life and works of Goethe, Schiller, Heine, and Jean Paul, with extended reading of their works. This included, for Goethe, *Lyrics*, *Goetz von Berlichingen*, *Faust*, Parts I. and II., with Dünzter and Schröer's Commentaries; for Schiller, *Lyrics*, *Don Carlos*, and several of his philosophical essays (*Anmuth und Würde*, *Naive und sentimentalische Dichtung*, and *Erziehung des Menschengeschlechts*); for Heine, *Lieder*, *Harzreise*, *Deutschland*; for Jean Paul, portions of *Flegeljahre* and *Siebenkäs*.
- FRENCH IV.** [12.] A study of the seventeenth century. Crane, *La Société Française au xvii^e Siècle*; Molière, *Les Précieuses Ridicules*, *Les Femmes Savantes*; Corneille, *Cinna*, *Polyeucte*; Racine, *Athalie*. Walter, *Classic French Letters*; also Voltaire's *Zaire*, and *Mérope*, to show the continuance of the classic drama in the eighteenth century.

ITALIAN. [5.] Grandgent's Grammar, Gherardi del Testa, *L'Oro e l'Orpello*; Pellico, *Le Mie Prigioni*; Maffei, *Merope*; Dante, the *Inferno*, and selections from *Purgatorio* and *Paradiso*.

The instructor in French had charge of the regular courses 1, 2, 3, and 5. The number of students and the work done in these courses were as follows:—

FRENCH 1. Fourteen students; the essentials of grammar, with Grandgent's Short French Grammar as the text-book; reading of Whitney's Introductory Reader and Volume 5 of Macmillan's French Classics.

FRENCH 2. Thirty-two students; grammar and syntax, with exercises in composition from various sources; reading of Berthet's *Le Pacte de Famine*, Souvestre's *Le Mari de Mme. de Solange*, Super's Selections from French History, De Musset's *Pierre et Camille*, Fontaine's *Fleurs de France*, Racine's *Athalie*.

FRENCH 3. Twenty-five students; review of the principles of syntax; reading of Racine's *Esther*, *Phèdre*, and *Mithridate*, Corneille's *Polyeucte*, Molière's *L'Avare*, De Vigny's *Cinq-Mars*, and Taine's *Les Origines de la France Contemporaine*.

FRENCH 5. Eight students; reading of two volumes of Sainte-Beuve's Essays, Selections from the Lyrics of Lamartine, Hugo, and De Musset, Beaumarchais's *Barbier de Seville*, Pailleron's *Le Monde où l'on s'ennuie*, Freeborn's Selections from Alphonse Daudet, Van Daell's Selections from Paul Bourget, Leune's Difficult Modern French.

The work of the Engineers in French, under Mr. Wade, was conducted in four classes as follows: a class in Elementary French, composed of six Freshman Engineers, who for various reasons had not previously taken French, and one student from the Bromfield-Pearson School. This class was formed late in October, and work was suspended late in May. The usual

amount of grammar and about one hundred pages of reading were covered.

The Freshman Engineers reviewed the grammar, using Joynes' Minimum French Grammar, and read the following works: Dumas' *L'Évasion du Duc de Beaufort*, Halévy and Labiche's *La Cigale chez les Fourmis*, about one hundred pages of Herdler's Scientific French Reader, George Sand's *La Petite Fadette*, and a portion of Halévy's *L'Abbé Constantin*; outside of the class, Erckmann-Chatrian's *L'Histoire d'un Pay-san* was read and an examination passed.

The Sophomore Engineers, in two divisions, pursued for the entire year a course of Nineteenth Century authors, reading selections from George Sand (*La Mare au Diable*), Balzac (*Le Curé de Tours*), De Vigny (*La Canne de Jonc*), Daudet (Selections), Angier (*Le Gendre de M. Poirier*), Hugo (*Hernani*). One book of Volume I. of Hugo's *Les Misérables* was read outside the class. During the last half year the principles of syntax were reviewed, using Chardenal's Advanced Exercises as a text-book.

History. — In this department four subjects have been treated during the past year. General History (History 1), Modern European History (History 2), American Colonial History (History 4), and the Political and Constitutional History of the United States (History 5). The seminary in American History (History 9) has also been at work during the year.

History 1 was given during the first term to fifty-five students, fifteen of whom were Juniors in the Engineering courses, for whom this was a required subject. Of the remaining forty, who elected the subject, five were from the Divinity School, and the others were special students, Sophomores and Juniors. Three lectures were given each week and a line of parallel reading was prescribed. Notes by the class were required

and were subject to examination by the instructor. Each member of the class was required to submit a thesis on some subject chosen from a list prepared by the instructor, and a written examination was held at the close of the half year.

In History 2, also given during the first term, six Juniors were enrolled. The work was a study of European History since 1648. The instruction was by lectures, topical study, and reading of the best available authorities. A considerable amount of individual work was done by each member of the class.

History 4 was given in the second term to a class numbering twenty-six, Special Students, Sophomores, Juniors, and Senior. A careful study of colonial development was made, with Thwaites's Colonies as a basis, by means of lectures, topical reports, discussions, and frequent written work.

In History 5 two Seniors were enrolled. The work consisted of a study of the best writings on our national history, with frequent reference to original authorities, investigation of topics by the students, and informal discussion.

As in the previous year some interesting work was done in the way of independent investigation by two Seniors working in History 8. The topics considered included the Mayflower Compact, Roger Williams in Massachusetts, the Beginnings of New England Commerce, Witchcraft in New England, the New England Confederacy, the Albany Congress, and Franklin's Plan of Union. In the second term one member of the seminary made a study of the early history of Haverhill, and another prepared a valuable paper on the New Hampshire land grants and their struggle for statehood. Final honors were awarded to Charles Neal Barney, of the graduating class.

The Rev. John Coleman Adams, D. D., kindly gave two lectures on Oliver Cromwell and Abraham Lincoln, under the auspices of the department. These lectures were open to the

public and were well attended. The department needs a lecture fund that will enable it to maintain each year a course of such lectures, for the extension of its usefulness within the college.

As in previous years since the department was opened, its efficiency has been seriously hampered by the lack of necessary equipment. This lack is more seriously felt as the work of the department is more fully developed and organized. It is now located in convenient rooms, where a working department library, for reference and special study, will be assembled as rapidly as circumstances will permit. It is very desirable that these rooms should be made attractive and should illustrate history. The department wishes to secure for this purpose, from friends who may be interested in its work, portraits and pictures of real historic and artistic value. The educational worth of such surroundings cannot be expressed in words, but it is an influence felt by both student and instructor.

There is immediate and pressing need of a small fund for the purchase of adequate maps. The intimate connection of geography and history must be presented graphically to be comprehended by students, and at present we have nothing for this purpose.

It is proper in this connection to mention gratefully the gift to the Library, by Thomas G. Frothingham, A. M., of the valuable collection of his father, the late Richard Frothingham. This collection, forming the basis of Mr. Frothingham's scholarly work in our colonial and early constitutional history, is of notable excellence in its field and of large practical value to the student of American history. Not since it was opened has this department received so valuable an addition to its working power.

Large sums are still needed, however, for books and other material, to enable the workers in this department, both students and instructors, to do what should be done in this important

field. The time seems to have come when it is desirable that the needs of the closely allied and important departments of History and Political Science should receive some attention, and their work should be systematically co-ordinated to secure the best results for a large number of students to whom they are subjects of first importance.

It is, perhaps, not out of place to note that through the initiative of this department, a conference on college entrance requirements in History was appointed by the New England Association of Colleges and Preparatory Schools, Tufts College having a representative on the conference. The result has been the preparation of a printed report, for the consideration of the association, having for its object the fuller and more perfect development of history teaching in the secondary schools, and the closer union of the colleges with secondary schools, so far as history is concerned. The views of the conference have strong support among college and secondary school teachers, and good results are hoped for from the movement.

English Literature and Oratory.—In the department of English Literature and Oratory, about one third of the Professor's time was as usual given to the latter subject, and two thirds to the former. The college class beginning Oratory was divided, according to the preference of its members, sixteen choosing to read *As You Like It*, and twenty-three preferring to study examples of senatorial speaking. Ten advanced students elected to debate current questions, and in the second term the class was interested to assume the form of a legislative body, preparing bills in committee that were afterward discussed and amended. The class continuing the study in the direction of dramatic reading numbered eighteen. In the Divinity School twelve students completed, during the first term, the required work in the subject, and eleven entered upon it during the

second term. A special class of five divinity students practised reading and extempore speaking for an hour a week during the first term. The usual public prize readings and extemporaneous speaking were held in June.

A class of forty followed the work of the classic school in English Literature, during the first term, paying special attention to Milton. In the second term twenty-six students read twenty plays of Shakespeare, besides making special study of Othello; and twenty-four students traced the course of the Romantic movement. In the two latter classes the experiment was tried of requiring the committing to memory of a definite amount of English verse, to be afterward written out in the class-room. The class of twenty-three studying Victorian authors gave emphasis to the work of Tennyson and Browning, with less attention to Ruskin and Carlyle. In all these classes essays were prepared, usually upon subjects not treated in the class-room. In the belief that opportunity should be offered, here as elsewhere, for acquaintance with Old English, the instructor, during the first half-year, read with two students one hundred and fourteen pages of the prose selections in Bright's Anglo-Saxon Reader. The advanced class in English Literature, after covering in outline the history of the drama to Marlowe, devoted its time to the preparation and public presentation in Goddard Gymnasium of the first English comedy, Ralph Roister Doister. The performance was witnessed by a number of teachers from preparatory schools and sister colleges, and has excited favorable comment.

As a natural result of the work in literature, and the constant use of books by an increasing number of students, the resources of the college library have been taxed to the utmost. It is hoped that some liberal provision may be made by which the books needed from time to time, as the tools without which the work in literature cannot profitably be pursued, will be steadily

furnished. Several hundred dollars devoted to this end would supply a number of grave deficiencies that still exist, notwithstanding the past generous contributions of the Joy Library Fund.

English and Philosophy.—During the year, material progress has been made in adjusting work to the requirements of the new curriculum,—such progress that the coming year may offer all the subjects named in the latest catalogue, with possibly some changes in their order. The subjects assigned to this professorship are grouped under the Departments of English and Philosophy, seven subjects in the former and six in the latter. As the English of the Engineering courses is done in classes separate from those in liberal arts, these subjects together call for no less than forty-nine term hours. About forty term hours have been given during the past year, but as some classes have been met in two or three divisions each, the actual number of class hours has been considerably larger.

This work could not have been done without additional teaching force. Mr. Whittemore, as instructor in English, has had charge of more than one half of the work in Rhetoric and Composition. It is now desirable, if not imperative, that a similar division be made in the department of Philosophy. The coming year invites at least the beginning of the long-delayed expansion of this important department, in which the College has been lamentably weak. If one man is to teach Psychology, both old and new, and Logic and Ethics and the History of Philosophy, together with even less than one half of the Rhetoric and Composition, the College must continue to be lopsided. It is to be hoped that some provision may speedily be made for the development of philosophical subjects.

The following is a schedule of hours, with brief description of class work, for the past year:—

English.

1. Freshman class. Forty-four members in two divisions, each division weekly for the year. Composition, largely extemporaneous, about two papers a month required. Also talks on which notes were taken, subject to examination.

6. Advanced Rhetoric, fourteen in class, mostly Juniors, three times a week for first term. A large amount of assigned reading, with reports and discussions, relating to the essentials of literature as art.

3, 5, 7. Miscellaneous class in Composition. Twenty-eight members, three times a week for second term nominally, but really individual work, in which each student was met once a week, requiring from six to ten hours of the Professor's time.

Philosophy.

1. Psychology. Twenty-four members in class, mostly Juniors, three times a week for first term. Basis of the work, Sully's Outlines.

2. Physiological Psychology. Three members in class, three times a week for second term. This was simply a voyage of exploration with a view to the possibilities of class work hereafter. It seems necessary to do something in this boundless field even if no equipment can be provided. More definite work will be arranged for the coming year.

3. Logic. To provide for the adjustment of classes to the new curriculum, Logic was repeated in the second term. Class for first term, eight members, mostly Seniors, three times a week. Basis of the work, Hyslop's Logic. Class for second term, seventeen members, mostly Juniors, three times a week. Jevons' Lessons, with large additions and frequent practical exercises.

5. Ethics. Four Seniors three times a week for first term. Basis of work, Calderwood; much additional reading.

7. History of Philosophy. One Senior directed in his work for one term.

Work in English under Instructor Whittemore is not included in this schedule.

Library.—The accessions for the year have been eighteen hundred and sixteen volumes, three thousand and ninety-two pamphlets, and twelve hundred and eighty-five numbers; by purchase seventy-eight volumes, one pamphlet, and seven hundred and four numbers; by donation sixteen hundred and forty-eight volumes, three thousand and ninety-one pamphlets and five hundred and eight numbers; by binding ninety-two volumes.

Among the accessions were three hundred and eighty-nine duplicate volumes, two hundred and ninety-nine of them in the Frothingham donation.

One of the most valuable donations the Library has received for many years came from heirs of the late Richard Frothingham, through Thomas G. Frothingham, A. M., and was made up of valuable historical works numbering twelve hundred and ninety-four volumes and two thousand one hundred and thirty pamphlets, many of them being very rare works. Another donation worthy of special mention is that of all the publications of the Egypt Exploration Fund, the gift of Mr. E. S. Dixwell. From Mr. J. C. J. Brown were received three rare books, and from Rev. Dr. Biddle one hundred and forty-six volumes, fifteen pamphlets, sixteen numbers.

Mr. Snow, the assistant, proved to be very helpful. He made a shelf list of the books and changed the numbers on the books. The catalogue has been modified to make the numbers correspond, so that now only four upper rows half way round remain to be done in the large room of the Library.

Political Science.—The President of the College gave instruction throughout the year three hours a week to a class of thirty

in Political Economy. Marshall was used as a text-book, and in addition to the text-book work, lectures were given on the subjects of finance, banking, tenure of land, and taxation. Problems were also assigned to the class and investigations required, the results of which were reported to the instructor. In Jurisprudence, Ancient Law was studied during the first term and International Law during the second term. Nine students elected Ancient Law and eleven International Law. Both subjects elicited a lively interest, and in some instances led students to carry their investigations far beyond the limits set in the class. Beside the regular classes three Seniors and one Junior, having Political Science as a major subject, took research work pertaining either to colonial or constitutional history and did very creditable work.

College Pulpit.—The President occupied the College pulpit, either in person or by exchange, mostly in person, every Sunday during term time. As was intimated in my former report, this is a great burden. The teaching done by the President amounts on an average to nine hours a week, or what is regarded by many teachers as an ample program. Add to that the administrative work devolving upon the head of the College, together with duty of pulpit preparation, it will be seen that the burden is very heavy and ought to find some relief. The spiritual interests of the College really demand that specific provision should be made for the care of the pulpit in some other way. The gift of a sum of money for this particular object would be as welcome as any that could be made, and would be sure of accomplishing great good.

In conclusion, I call attention to the reports of the professional and other special departments.

E. H. CAPEN.

TUFTS COLLEGE,
September 19, 1895.

THE DIVINITY SCHOOL.

REPORT OF THE DIVINITY SCHOOL.

To the President:

Few things are called for in the report of the Divinity School for the year 1894-95 beyond its statistics. Forty-three students were on its roll of membership for the year, seven Seniors, eight Middlers, fifteen Juniors, seven Sub-Juniors, and six Specials.

Including the President of the College and the Professor of Oratory, the school counts on its list of teachers eight resident professors, and three non-resident lecturers. During this year six lectures on Christian Economics were given by Rev. F. W. Hamilton, and four lectures on Some things which hinder the work of the Minister, by Rev. Dr. John Coleman Adams.

So far as the current work of the Divinity School is concerned, three features may be noted: Independent research on the part of the students; increasing interest in Biblical studies; and the emphasis, in all departments of instruction, which is put upon ministerial ability and character.

So far, too, as the methods of instruction deserve to be spoken of, they are to be commended, I think, as the methods of history and discussion, as distinguished from those of mere advocacy and individual opinion. More and more the resort is to what are called laboratory methods. What the school needs, therefore, is a growing reference library, for which we must look to our friends. If some person, or persons, who see that the hope of a great cause is in a well-instructed ministry, would provide a Reference Library Fund of five thousand dollars, the income only to be spent for books, it would lift the school out of all embarrassment in this particular; for even so small a sum

as two hundred and fifty dollars a year would enable us to purchase books at the time when the work of the respective classes demands them.

This report cannot close without grateful reference to the man who was at once patron and benefactor of the Theological Department of the College. Alonzo Ames Miner will always be held in intelligent and affectionate memory by the Faculty and the students of the Divinity School, not only for his large interest in theological learning, but for his special interest in providing fit facilities for theological instruction in the noble building which bears his name.

Respectfully submitted,

CHARLES H. LEONARD,

Dean.

TUFTS COLLEGE,

September 19, 1895.

THE MEDICAL SCHOOL.

REPORT OF THE MEDICAL SCHOOL.

To the President:

The second year's work in the Medical School closes with a good deal of satisfaction, and words of encouragement are coming to us from many sources.

There has been progress in the various departments of the school. All departments have been strengthened, and new departments established. The Department of Bacteriology has made an advance under the efficient management of Drs. Austin and Brown. Cultures are made, examinations of sputa and morbid specimens are subjected to critical tests, and the school is now able to furnish authentic reports to the various local Boards of Health in the Commonwealth at a small expense, and to local physicians at a low cost.

Among the new departments we may mention Dr. Jack as Professor of Otology, Dr. Channing as Professor of Mental Diseases, Dr. W. E. Boardman as Lecturer on Laryngology, Dr. Otis, Lecturer on Rectal Diseases, Dr. Raddin, Lecturer on Genito-Urinary Surgery, and Dr. Durrell as Professor of Medical Jurisprudence, so that to-day we have thirty-five on the teaching force.

During the year Dr. Darrah resigned as Lecturer on Clinical Surgery, but Dr. H. L. Smith, who is on the Surgical Staff of the City Hospital, was elected as Professor of Clinical Surgery. This opens a much larger field for clinical observation.

There have been one hundred and four matriculates during the year; according to the Catalogue, ninety-six,—forty-four in the Freshman class, twenty-seven in the Middle, and twenty-five in the Senior class, but eight came in too late to be pub-

lished, so that we have actually one hundred and four as against eighty last year. Nineteen came up for graduation and received their diplomas.

In our report last year we recommended the establishing of a fourth year to give more opportunity for clinical work. This has been accomplished, so that now there is an optional course of clinical work as a fourth year; not, however, absolutely essential for graduation at the present time, but quite desirable. The fourth year, however, will be made compulsory for matriculates of next year, *i. e.*, 1895-96. Those who have matriculated prior to 1894-95 may take this course or not, as they elect, with very little additional expense. This course will be of decided benefit to the student and will fit him for any position he may be called to fill in his profession.

There has also been an Extra Mural course opened, where students can, for a trifling expense, attend, and advance in special lines if they so desire.

Again, there has been established for Seniors the following electives: Neurology, Pediatrics, Otology, Legal Medicine, and Electro-Therapeutics. The student is required to select two of these before November 1 of each year as special studies.

The Suffolk Dispensary is now under the complete control of the Faculty, and has been an important source of clinical material.

There has been a constant desire on the part of the Faculty to make the school one of the best, and in some respects we are doing more than most of the Medical Schools in this country. In the first place, we are doing too much in General Chemistry, taking too much time, requiring too much of the student. It seems to me that we could do better to make General Chemistry, or at least a part of it, a preparatory study, and devote the time of students more to Medical Chemistry.

Again, we are giving too much time to the so-called specialties.

I think that instead of giving two lectures a week during the entire term, as in some instances we have done, we should limit the lectures on special subjects to one a week, or not to average more than one a week for the entire term. This will not debar a student from pursuing his studies in a special direction if he so desires, because having a fourth year of clinical work he can become a specialist in any direction he may elect.

The various societies in connection with the school are in a flourishing condition, and good will and good fellowship seem to prevail.

Dr. Austin, the Professor of Medical Chemistry, asked for and was granted a leave of absence for one year to pursue his investigations and studies in Europe. He leaves Dr. Thorpe, a very efficient chemist, to look after the work in the school during his absence.

I desire to say, in conclusion, that the work in the Medical School during the past year has been very gratifying.

The prospects for the coming year are encouraging. There are very strong indications of a large class. Everything seems to emphasize the fact that we must have more commodious quarters for another year.

Respectfully,

ALBERT NOTT, DEAN.

SEPT. 19, 1895.

**THE BARNUM MUSEUM OF NATURAL
HISTORY.**

REPORT OF THE BARNUM MUSEUM OF NATURAL HISTORY.

To the President:

The principal event of the year has been the completion of the west wing of the Museum building to which allusion has been made in former reports. It is now regularly occupied by classes, and proves well adapted for its purpose.

The collections are in about the same condition as at the last report. Plans have been drawn for cases for the new exhibition hall and these are now being constructed by the janitor in his spare time, but so far he has been so occupied with the equipment of the new laboratories that he has had but little time for the cases.

The additions to the collections embrace, besides material for class work, the following:—

BY DONATIONS.

C. H. BARRETT, Medford: Skull of Woodpecker.

DR. C. W. STILES, Washington, D. C.: Parasitic Worms (*Distoma tricolor*).

MRS. THOMAS WHITWORTH, Medford: 27 species of Reptiles, Batrachians and Arthropods, from Madagascar.

DR. FRANK B. BROWN, Dorchester: 3 Embryos.

PROF. A. E. AUSTIN, Dorchester: 1 Embryo.

DR. HAMLIN, Charlestown: Tape Worm.

MR. F. D. LAMBERT, Class of '94: 2 species of Sturgeon, Paddlefish, Garpike, Silver Gar, Lawyer, Burbot, and Siredon, from Muscatine, Iowa.

ROLAND G. HAMMOND, Brockton, Class of '68: Great Blue Heron, mounted.

BY EXCHANGE.

SKELETONS OF Bat, Bandicoot, Hedgehog, Hawk, Woodpecker, Parrot, Crow, Pigeon, Hen, Gallinule, Heron, Goose, Gull, Tortoise,

Monitor, Alligator, Snake, Frog, Salamander, Perch, Carp, Pike, and Sturgeon.

SKULLS OF Cod, Shark, and Chimæra.

ALCOHOLIC PREPARATIONS OF Lacerta, Anguis, Chameleo, Bombinator, Loricaria, Leptocephalus, Chimæra, Myxine, Pyrosoma, Limacina, Atlanta, Dichelaspis, Scalpellum, Aetheres, Argulus, Apus, Leptodora, Enchytræus, Piscicola, Pontobdella, Ligula, Velella, Spongia, Carinaria, Cymbulia, Ciona, Berœ, Cotylorhiza, Salpa, Cestum, Aplysia, Lizzia, Thysanozoon, Chætopterus, Pterotrachea, Halistemma, Collozoum, Thalassicola, Nausithoe, Hyperia, Sipunculus, Octopus, Sepia, Philonexis, Nebalia, Diplozoon.

In addition a considerable amount of material has been mounted for exhibition purposes and is now awaiting the completion of the cases for its proper display.

JOHN P. MARSHALL,

Director of the Barnum

Museum of Natural History.

TUFTS COLLEGE, Sept. 19, 1895.

**REPORT OF THE BROMFIELD-PEARSON
SCHOOL.**

REPORT OF THE BROMFIELD-PEARSON SCHOOL.

To the President:

During the year just closed the teaching force of the school has been chiefly employed in giving the required instruction in Drawing and Shop Work to the engineering department of the College. Twenty-seven Freshmen, thirty-eight Sophomores, twelve Juniors, and one Senior, making a total of seventy-eight, have received instruction in the Department of Drawing. Instruction in the several courses of Shop Work have been given by Mr. Furbish to twenty-eight Freshmen, thirty-three Sophomores, and eleven Juniors. This makes a total of seventy-two Engineering students pursuing studies at the school.

Seven students entered for the special courses of the school, six pursuing the same for the year. These last courses, which include the preparatory and special Engineering Course, constitute the most important phase of the future work of the school. They are not only unique, and likely to attract many desirable students who may not be fully prepared to enter the College, but they are destined to contribute largely to the growth of the engineering department by interesting men in, and preparing them for, the more extended courses of the College. On this basis, however, the success of the school will result in an almost complete change of membership annually. For the present at least, and until the special work of the institution shall become known, this annual loss of membership will have to be made good by judicious advertising.

The work of the special students during the past year is deserving of much commendation by reason of the excellence

and amount of the same. Besides the regular prescribed studies, the students have made an excellent power test of our engine and machinery, a test of the engines of the East Boston Dry Dock Company, and assisted in a test at the Narragansett Electric Light Company, Providence.

The equipment of the shops has been somewhat increased and improved during the year. The completion of the Moulding Shop will enable the course in Pattern Making to be developed on as broad lines as may be desired. We have received from the Brown and Sharpe Manufacturing Company and the Providence Steam Engine Company, both of Providence, a considerable number of valuable patterns, which, together with those made by our classes, will provide us with the necessary patterns for the moulding course. The Machine Shop equipment is yet to come. The vises, files, etc., required for the course in Bench Work, were purchased last February, and a class of eleven Juniors began the work, but the hours were reduced one half by reason of the lack of machine tools necessary to complete the course. The Junior class of next year will, however, be a large one, and the full course required. This will necessitate the complete equipment which should be in readiness by the first of March.

The third story of the building has been supplied with additional radiators and piping in order to satisfactorily heat the same. Special valves and piping have also been furnished to enable us to use our exhaust steam for heating purposes. This, together with the covering of our steam pipes, has somewhat lessened the consumption of coal. Lockers for the shops have been found necessary, and will be constructed during the fall. The equipment of the drafting room on the first story will be completed by the addition of modern tables now in process of construction.

Respectfully submitted,

GARDNER C. ANTHONY, *Dean.*

TUFTS COLLEGE, Sept. 19, 1895.

THE GODDARD GYMNASIUM.

REPORT OF THE GODDARD GYMNASIUM.

To the President:

The Director of the Gymnasium begs to submit the following report: —

During the past year, one hundred and eighteen men have taken the prescribed course in physical training. Of these fifty-seven were Sophomores and sixty-one Freshmen. Mr. Hewitt, assisted by Mr. Ryder, taught the Freshmen. Their work consisted of free movements, a wand drill, and simple exercises upon the vaulting horse, vaulting bar, and suspended parallel bars. Considerable attention also has been given to running and medicine ball exercise. The Freshmen met the assistant three times each week from the middle of November to the middle of March.

The Sophomores have been taught by the Director three hours each week, during the period covered by the Freshman work in physical training. The Sophomores have had free movements, a dumb-bell exercise, and exercises upon the vaulting bar, parallel bars, and horse. For work upon the fixed apparatus, Mr. Hewitt has had charge of one squad of Sophomores, while the Director led the other. Several upper class men have taken this course with the Sophomores.

F. W. DURKEE,
Director of the Goddard Gymnasium.

TUFTS COLLEGE, Sept. 19, 1895.

